B lifetimes, $B\bar{B}$ mixing and EPR correlations

Section Editors

BaBar: *Soeren Prell*
Belle: *Bruce Yabsley*
Theory: *None*

Papers

BaBar (Published)

1) tau0,dM,partial D*lnu PRD73,012004(2006)
2) tau0,dM, D*lnu PRD67,072002(2003)
3) tau0, partial D*pi/rho PRD67,091101(2003)
4) tau0, partial D*lnu PRL89,011802 (2002)
5) tau0+, D(*)pi/rho/a1 PRL87,201803(2001)
6) dM, di-lept, PRL88,221803(2002)
7) dM, D(*)pi/rho/a1 PRL88,221802(2002)
8) dM, D(*)pi/rho/a1 PRD66,032003(2002)
9) T+CPV di-lept PRL88,231801(2002)
10) T,CP+CPTV, di-lept PRL96,251802 (2006)
11) dG, CP,T+CPTV, full PRD70,012007(2004)
12) dG, CP,T+CPTV, full PRL92,181801(2004)
13) CPTV + LV, di- lept PRL100,131802(2008)

Belle (Published)

1) tau0+, full PRL88,171801(2002)
2) tau0+,dM, full, PRD71,072003(2005)
3) dM+CPTV, di-lept PRD67,052004(2003)
4) dM, partial D*pi PRD67,092004(2003)
5) dM, D*lnu PRL89,251803(2002)
6) dM, full PLB542,207(2002)
7) dM, di-lept PRL86,3228(2001)
8) EPR PRL99,131802(2007)
9) CPV, di-lept PRD73,112002(2006)

Additional papers anticipated to be published in time to be included in book:
Di-lepton w/ full dataset (dM, CP,T+CPTV)

Additional papers anticipated to be published in time to be included in book:
CPTV, dG, dM, tau0+, full had+SL

Summary of papers (BaBar+Belle):
1) PRL: 12 2) PRD: 9 3) PLB: 1

Section layout

14.5 B lifetimes, BBbar mixing and CPT violation
- 14.5.1 Introduction
  [Samples, special resolution functions?]
- 14.5.2 B Lifetimes
  [tau0, tau+, tau0/tau+]
- 14.5.3 BBbar mixing
  - 14.5.3.1 Measurements of Delta m
  - 14.5.3.2 Measurements of Delta Gamma
- 14.5.4 EPR correlations
- 14.5.5 CP, T, CPT violation
- 14.5.6 Lorentz violation

Planned tables and figures

Tau0,tau+,tau0/tau+ from various samples (+B factories average)
Delta m from various samples (+B factories average)

Approximate expected # pages needed for whole section: 10-15

Inter-correlation

14.5.1 Introduction related to 7. TD analyses, including:

4. Vertexing
5.3 Flavor tagging
6. B reconstruction

8. Max. LL fitting

14.5.3.1 Measurements of Delta m 14.2 Vtd and Vts

Contributors

Confirmed (beside section editors)
BaBar: None
Belle: None

Un-confirmed
BaBar: None
Belle: None

Comments

At the SLAC workshop we decided to split B Lifetimes, BBbar mixing and EPR correlations from CPT violation. The main reason was that conceptionally CPT violation should be after the CP violation chapter of phi1-phi3 and the other topics should come before.

Since we also measure CP and T violations in BBbar mixing the mixing chapter would be rather long wrt the CPT chapter, the latter only covering one brief topic. Perhaps we should revisit the issue and check if we cannot combine the topics into one section as indicated in the outline here.

Should the extensions (CP,T,CPT) to the standard mixing formalism be discussed in this section?